PROJECT NUMBER: 2108
PROJECT TITLE: New Product Technology
PROJECT LEADER: W. T. Callaham
PERIOD COVERED: November, 1988

I. PROJECT SAUNA

A. **Objective**: Develop an acceptable product with a modified plastic fluted filter.

B. **Status**: Cigarette models were prepared with several levels of front band dilution and cigarette paper dilution. These were evaluated by EEMA personnel and one prototype was subjectively preferred. This model had 80% laser rear band dilution, 12% ESP front band dilution, 130 Coresta ESP cigarette paper and minimal smoke blow back. The ISO delivery for this model and Saudi Barclay are as follows:

	Sauna		Saudi Barclay	
	Open	Occluded	Open	Occluded
ISO Tar, mg/cigt	0.6	11.3	1.5	11.8
ISO Nicotine, mg/cigt	0.14	0.94	0.18	0.96
Puff count, puffs/cigt	8.5	6.8	9.8	8.0

To further optimize the tar and nicotine deliveries for the Saudi market, a new blend was prepared with two different flavor systems. The previously preferred model was made with new fillers and cork-on-white tipping. Several of the cork-on-white tippings investigated experienced activation of the hot melt precoating during laser perforation of the rear band making the tipping unuseable. Consequently, the rear band had to be preforated via ESP with an actual dilution of 70%. The ESP front band dilution was increased to 20% to better balance the dilution. Smoke blow back continued to be less than or equivalent to that of Saudi Barclay. The ISO deliveries for these models are as follows:

	Old Blend Old Flavor		New Blend Old Flavor		New Blend New Flavor	
	Open	Occl.	Open	Occl.	Open	Occl.
ISO Tar, mg/cigt	2.6	11.4	3.0	10.6	2.5	10.2
ISO Nicotine, mg/cigt	0.27	0.95	0.30	0.81	0.25	0.80
Puff count, puffs/cigt	9.3	7.2	8.2	6.9	8.3	6.6

Internal subjective evaluation of these models indicated no preference for either flavor, therefore, the old flavor will continue to be used.

C. **Plans**: Prototypes with the new blend and both flavor systems, will be remade with target dilution levels of 80% rear band (via laser) and both 12% and 20% front band (via ESP). These will be submitted to EEMA personnel for evaluation.

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II. HUMIDOR PACK

A. **Objective**: Develop a moisture release device for use in a cigarette pack which maintains the pack OV at a desired level.

B. **Status**: Handmade packets were prepared with two different size Celgard "windows" and functionally tested versus the original packet design. After 25 days of laboratory and desert room ageing, the window packets are performing acceptably, with the packet having the largest window performing the better of the two. Pack OV results are as follows:

		Humidor Pack		
	Control No Packet	Standard Packet	Large Window	Small Window
Initial OV	13.8	13.8	13.8	13.8
Lab Conditions	13.5	14.7	14.2	14.1
Desert Room	8.7	11.6	11.5	11.1

Packets were also prepared with heated saturated solutions (no excess salt) and functionally tested. These performed acceptably, therefore, this change and the large Celgard window will be incorporated into the next packet production trial.

Reynolds Metals has supplied a modified EVA-foil laminate material for bonding with cellulose triacetate film (an alternate to Celgard). Packets are currently undergoing functional testing.

C. **Plans**: A packet production trial will be conducted in mid to late December at Paco Pharmaceuticals. Packets from this trial will be used for functional testing and cigarette packer development trials. Also, a consumer test is being considered for late January, 1989 in the Middle East.

III. KAYMICH MENTHOL APPLICATOR

A. **Objective**: Evaluate a Kaymich menthol applicator as an alternative mentholation process.

B. **Status**: Cigarette models from the most recent Kaymich mentholator trial have been tested analytically and subjectively against a menthol-on-foil control. Generally, the Kaymich models were subjectively variable in menthol response throughout three weeks of lab storage. The Kaymich models with the two higher menthol application levels (4.3 and 4.1 mg/cigt) were most comparable to the control after two weeks, however, the two lower level models (3.7 and 3.9 mg/cigt) did not deliver enough menthol in smoke. A puff-by-puff analysis of the two preferred Kaymich models versus the control after 17 days of storage indicated all three to be equivalent.

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C. **Plans**: Another trial will be conducted to further study the subjective response of Kaymich menthol models as well as the menthol application uniformity. Spray-applied menthol and menthol-on-foil models will be used as controls. Additionally, mentholated filters will be investigated as a means of achieving a more uniform menthol delivery in a shorter period of time.

To assess the menthol uniformity during this trial, two approaches will be taken. First, sequential cigarettes will be collected and these will be analyzed for total menthol. Also, a high speed video recording will be made of the cigarette paper exiting the menthol nozzle.

IV. EMBOSSING TECHNOLOGY

A. **Objective**: Explore embossing technology for potential new product development.

B. **Status**: During debugging of the new laboratory embossing unit, several damaged components were found. These items are currently being corrected by the vendor.

C. **Plans**: Continue providing support to Engineering as needed and pursue other applications for new product development.

V. MENTHOL-ON-FOIL

A. **Objective**: Support the introduction of the menthol-on-foil process.

B. **Status**: Mentholated foils were prepared for Product Development as requested.

The third mentholator control problem has not been corrected yet by Engineering due to priorities.

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